W. E. CLOW.

PIPE CLEANING MACHINE.

APPLICATION FILED JUNE 15, 1909. RENEWED MAY 10, 1910.

983,980.

Patented Feb. 14, 1911.

2 SHEETS—SHEET 1.

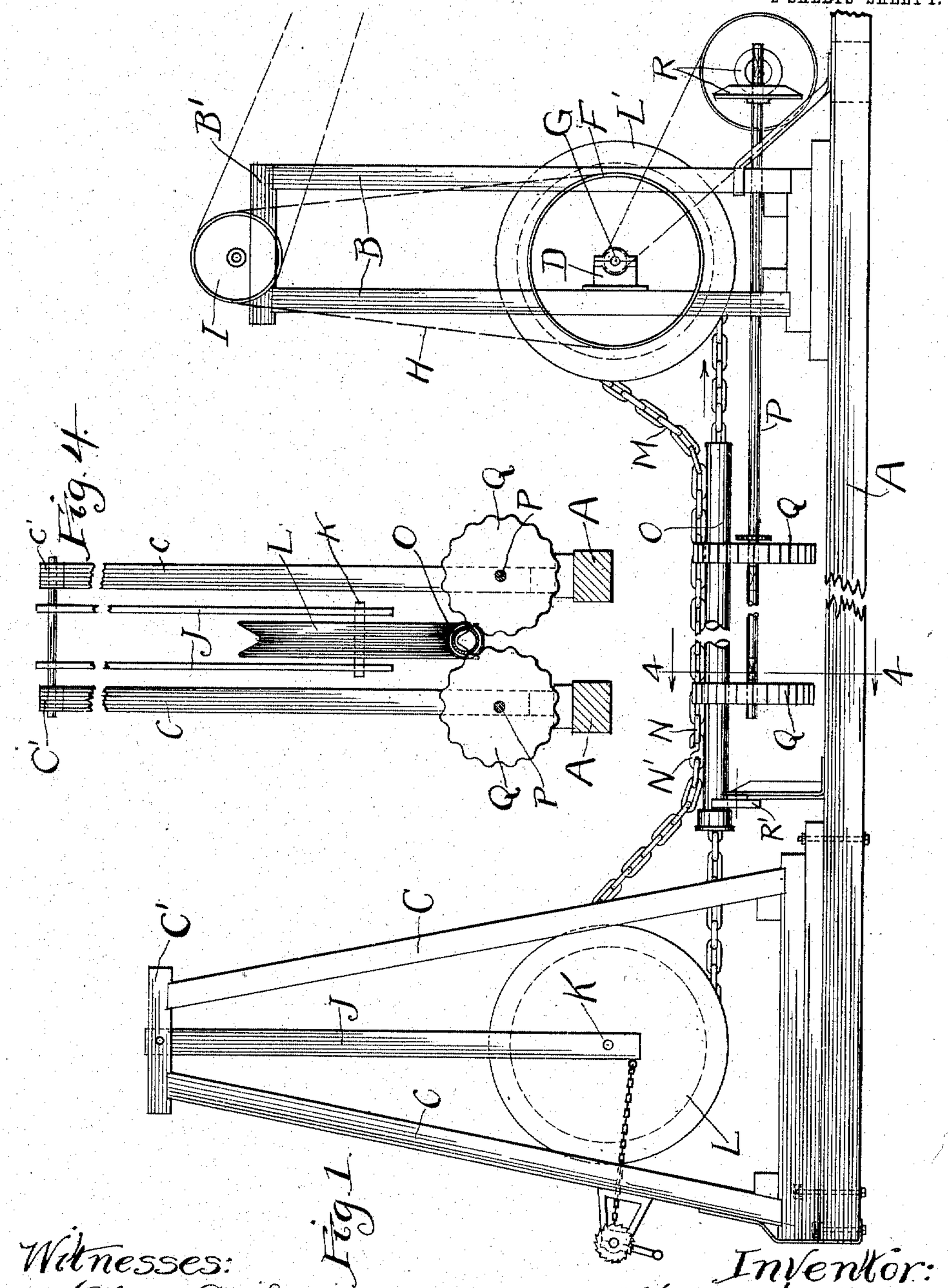

Fig. 1.

Fig. 4.

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2 SHEETS—SHEET 2.

Fig. 3

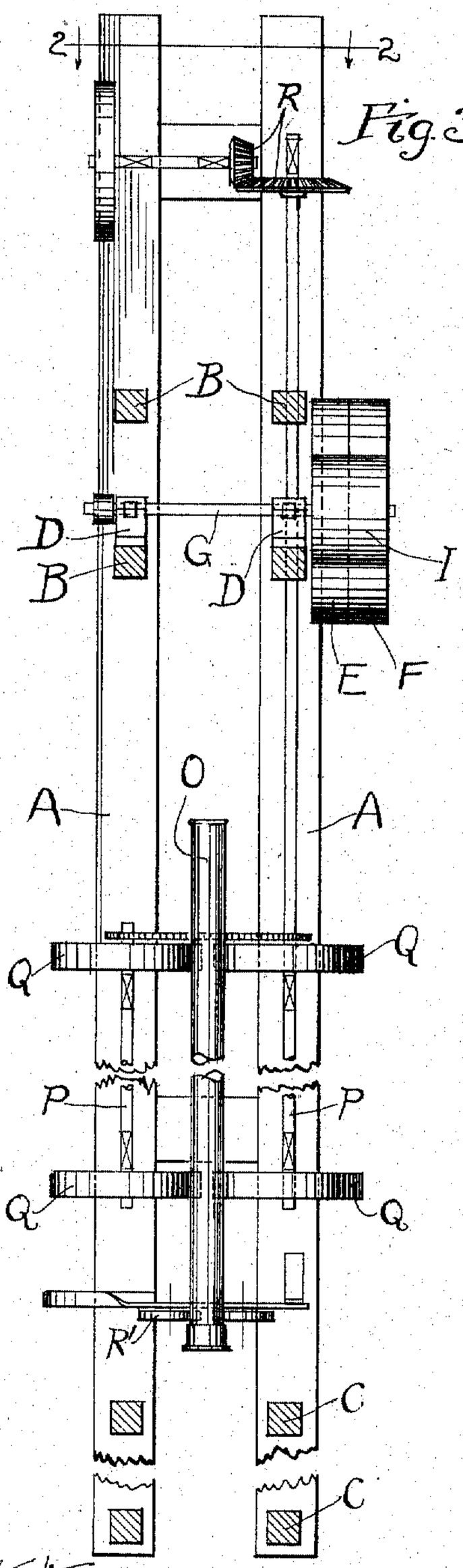
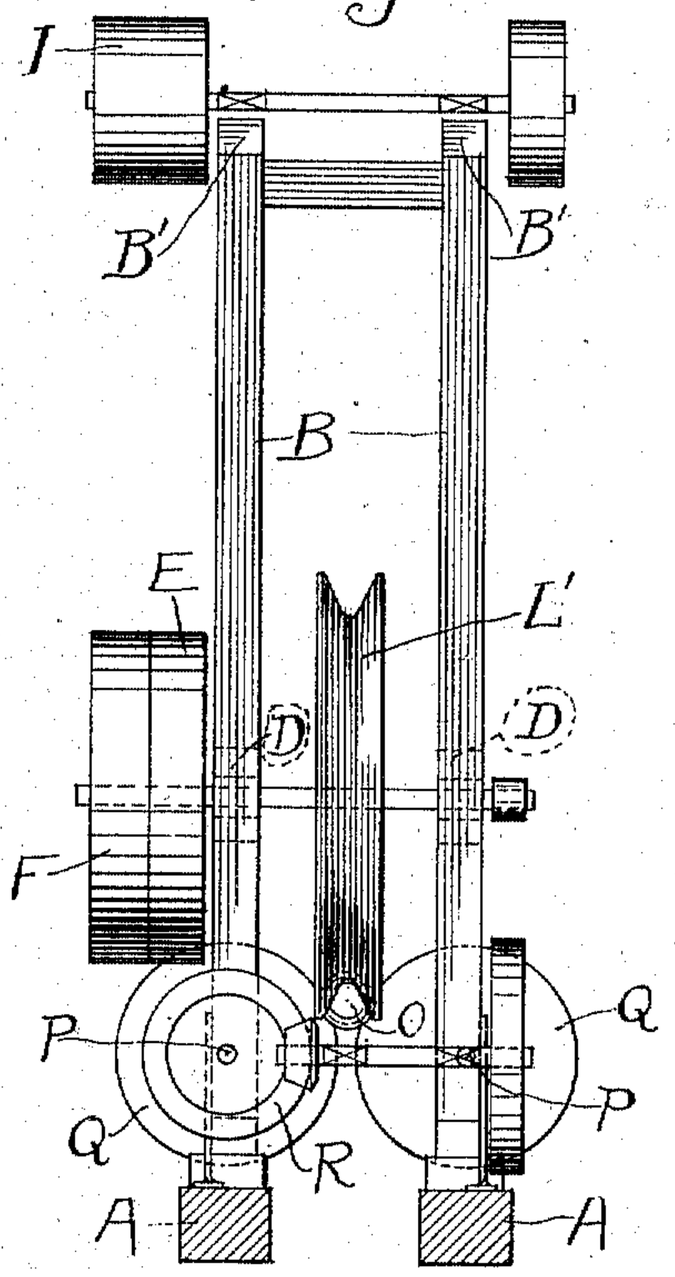


Fig. 2.



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UNITED STATES PATENT OFFICE.

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PIPE-CLEANING MACHINE.

983,980. Specification of Letters Patent. Patented Feb. 14, 1911.

Application filed June 15, 1909, Serial No. 502,319. Renewed May 10, 1910. Serial No. 560,463.

To all whom it may concern:

Be it known that I, WILLIAM E. CLOW, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Pipe-Cleaning Machines, of which the following is a specification.

The present invention relates to a machine for cleaning and polishing, more or less, the interiors and exteriors of cast iron pipes and the object of the present invention is to provide a machine which is simple in construction and efficient in the accomplishment of this result.

The invention consists in features hereinafter pointed out, and shown in the accompanying drawings which are made a part of this specification and in which:

Figure 1 is a side elevation of the improved machine. Fig. 2 is an end elevation thereof. Fig. 3 is a plan view thereof with certain of the parts shown in horizontal section. Fig. 4 is a vertical transverse section on the line 4—4 Fig. 3.

The machine has a base comprising two supporting beams, A which are parallel with each other and located in the same horizontal plane. These beams may be supported by any suitable standard or means, not shown in the drawings. They are of sufficient length to receive and accommodate pipes of the various lengths that are to be cleaned. At or near each end of these beams is a standard each of which preferably comprises two upwardly projecting arms, rising from the beams A and connected at top by a cross head. At one end of the machine the upwardly extending arms B are parallel, and the connecting cross head is shown at B^1. At the other end of the machine the standards are shown at C and converge upwardly, the cross head being shown at C^1. In both instances, however, the arms are vertical or perpendicular with respect to the general plane of the beams A. Below the cross head B^1 are hangers D which carry the bearings for two pulleys E and F mounted upon a shaft G, one of which pulleys is non-rotatively secured to the shaft and the other of which is loosely mounted thereon. The non-rotative pulley derives its motion from any suitable motor mechanism. As shown in the drawings it derives its motion from a belt H or equivalent gear passing over a pulley I supported by the cross heads B^1, but the details in this power-transmitting mechanism are left to the discretion of the builder. As before suggested the shaft G is supported and carried by the hangers D, but any suitable means carried by the standard may be used for supporting the shaft. The standard at the other end of the machine also has a hanger, lettered J, which carries and supports a shaft K, the two standards resembling each other excepting in the divergence and parallelism of their upwardly extending supporting arms. The shaft K carries an idle pulley L and the shaft G carries a driven pulley L′, both of which pulleys are circumferentially grooved as shown more clearly in Fig. 2, and around these pulleys passes a chain or other endless belt-like cleaning device M, the term "chain" as herein used being intended to comprehend any device of a belt-like character, so long as it is adapted to perform the functions hereinafter ascribed to the chain. This chain has an open link N and the adjacent link has a hook N^1, in order that the chain may be parted for the purpose of passing it or at least one lap of it through the pipe to be cleaned, which is shown at O.

Located above and parallel with the beams A are a pair of shafts P, journaled in suitable bearings supported by the beams. Each of these shafts carries a plurality of rolls, disks or wheels Q which are preferably circular or concentric with the shafts by which they are carried, respectively, excepting for peripheral notches or teeth, upon which the pipe to be cleaned rests, in the cleaning operation. One of these shafts is positively driven by any suitable mechanism. As shown in the drawing it is driven by a beveled gear R, which latter derives its motion from the shaft G. The pipe to be cleaned, resting in the bite of the rolls, disks or wheels will be revolved and by reason of this revolving of the pipe and the continuous passing of the chain through and upon the outside of it a thorough abrasion of the interior and exterior of the pipe will be accomplished, resulting in a thorough and efficient removal of roughness and irregularities of its interior and exterior surfaces. In Figs. 1 and 4 of the drawing the supporting and revolving rolls, disks or wheels, Q, are shown with peripheral notches or teeth, the object of which is to "jiggle" or jolt the pipe laterally, thereby accentuating or

accelerating the action of the chain on the interior and exterior surfaces of the pipe. While this is the preferred form of these rolls, disks or wheels, still, in its broadest aspect, the invention is not limited thereto and in Figs. 2 and 3 I have shown rolls in the form of true circles and without any teeth. Without any means for restraining it the passing of the chain through the pipe would have a tendency to move it endwise in the direction of the travel of the lap of the chain passing through it and in order to prevent this a retainer R^1 is provided which straddles the pipe and engages its hub, with which pipes of this character are usually provided.

As above intimated this machine is for the purpose of polishing and cleaning both the interior and exterior of pipes. The cleaning and polishing of the interior of the pipe is accomplished by one lap of the chain, which passes through the pipe, while the cleaning and polishing of the exterior of the pipe is accomplished by the other lap of the chain, which sags from one to the other of the grooved pulleys and has contact with the outside of the pipe, which, as before stated is constantly rotated, by the means described.

As shown in the drawing, the pipe is disposed or arranged in horizontal position, but this is not necessary, and if desired it may be arranged in an inclined position. In fact, the inclination of the pipe, as compared with the horizontal position, is preferable because when the pipe is inclined the dislodged particles will pass through it by gravity and thereby be discharged at its lower end. I desire to have it understood, however, that, in its broadest aspect, the invention is not limited to any specific location or arrangement of the parts of the machine whereby the specific position of the pipe relatively to a horizontal position is confined.

Having thus described my invention, the following is what I claim as new and desire to secure by Letters Patent.

1. In a machine for operating upon pipe, the combination of means for supporting the pipe, a chain adapted to have contact with the pipe, and means for moving the pipe and chain relatively to each other while in contact.

2. In a machine for operating upon pipe, the combination of means for supporting the pipe, a chain adapted to be placed in the pipe and have contact therewith and means for moving the pipe and chain relatively to each other while in contact.

3. In a machine for operating upon pipe, the combination of means for supporting the pipe, a chain adapted to be placed in the pipe and have contact therewith, means for supporting the chain, and means for imparting relative movement to the means for supporting the pipe and the means for supporting the chain, whereby the pipe and chain are rotated relatively to each other about the axis of the pipe.

4. In a machine for operating upon pipe, the combination of a suitable frame-work, means carried thereby for supporting the pipe to be cleaned, an endless chain adapted to pass through the pipe when on the supporting means, and means for actuating said chain.

5. In a machine for operating upon pipe, the combination of a suitable frame-work, means carried thereby for supporting the pipe to be cleaned, an endless chain one lap of which is adapted to be passed through the pipe when on the supporting means, and means for actuating said chain.

6. In a machine for operating upon pipe, the combination of a suitable frame-work, means carried thereby for supporting and revolving the pipe, an endless chain adapted to have contact with the pipe while being revolved and means for actuating said chain.

7. In a machine for operating upon pipe, a suitable frame-work, movable devices carried thereby and adapted to support the pipe so that it will be rotated by movement of said devices, means for operating at least one of said devices, an endless chain adapted to have contact with the pipe when supported by said devices and means for actuating said chain.

8. In a machine for operating upon pipe, the combination of a suitable frame-work, rolls carried thereby for supporting the pipe to be cleaned, means for revolving said rolls and thereby revolving the pipe, an endless chain adapted to have contact with the pipe, and means for actuating said chain.

9. In a machine for operating upon pipe, the combination of a suitable frame-work, parallel shafts carried thereby, rolls carried by the shafts for supporting pipe to be cleaned, means for revolving at least one of said shafts, an endless chain one lap of which is adapted to pass through the pipe to be cleaned, and means for actuating said chain.

10. In a machine for operating upon pipe, the combination of a suitable frame-work comprising two parallel bars, two parallel shafts, carried by said bars, rolls carried by said shafts and so located relatively to each other as to be adapted to support in their bite the pipe to be cleaned, means for revolving at least one of said shafts, an endless chain one lap of which is adapted to pass through the pipe and means for actuating said chain.

11. In a machine for operating upon pipe, the combination of a suitable frame-work, a series of rolls so located relatively to each other as to support in their bite the pipe to be cleaned, parallel shafts carrying said

rolls, means for positively driving one of said shafts, means through which the other of said shafts derives its movement from the shaft first aforesaid, an abrading device adapted to have contact with the pipe and means for actuating said abrading device.

12. In a machine for operating upon pipe, the combination of a suitable frame-work, rolls carried thereby and adapted to support the pipe to be cleaned, said rolls having peripheral teeth, means for positively revolving at least one of said rolls, an abrading device adapted to have contact with the pipe and means for actuating said abrading device.

13. In a machine for operating upon pipe, the combination of a suitable frame-work, rolls carried by said frame-work and adapted to support the pipe to be cleaned, said rolls being provided with peripheral teeth, means for revolving said rolls, an endless chain one lap of which is adapted to pass through the pipe to be cleaned, and means for actuating said endless chain.

14. In a machine for operating upon pipe, the combination of a suitable frame-work, rolls carried thereby and adapted to support the pipe to be cleaned, means for revolving said rolls, an endless chain adapted to pass through the pipe to be cleaned, means for actuating said chain and a retainer adapted to engage the pipe and prevent its endwise movement under the influence of the cleaning chain.

15. In a machine for operating upon pipe, the combination of a suitable frame-work, means carried thereby for supporting the pipe to be cleaned, said means being adapted to revolve the pipe and to impart lateral movement to it, an abrading device adapted to contact with the pipe and means for actuating the abrading device.

16. In a machine for operating upon pipe, the combination of a suitable frame-work, means carried thereby for supporting and revolving the pipe to be cleaned, an endless chain one lap of which is adapted to pass through the pipe and the other lap of which is adapted to contact with the outside of the pipe, and means for actuating said chain, whereby one lap thereof abrades the inside of the pipe while the other lap abrades the outside of the pipe.

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